UDC 636.2.034:636.084.1“454”

PRODUCTIVITY OF COWS GROWN IN THE MILK PERIOD IN TERMS OF DIFFERENT WATERING AMOUNT OF WHOLE MILK

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It has been proved that cows grown on restricted levels of whole milk (150 kg) hadve the same milk yield and reproduction ability as compared to the herdmates that obtained 400 kg of whole milk.

Ukrainian Black and White breed, whole milk, milk yield, period between of calving

To realize maximum the genetic potential of milk production of cows is possible by the use of advanced technologies for their feeding and keeping, the use of scientific-based system of selection and breeding of the species, the level of veterinary protection of the herd and young-stock breeding intensity.

The aim of the research was to study the milk production and reproductive ability of cows bred at different levels of watering of whole milk in the milk period.

The experiment was conducted on cows of Ukrainian black and white dairy breed in the Agronomic Research Station of NULES of Ukraine, Kyiv region.

The animals of the control group (n = 11) during the milk period were watered 400 kg of whole milk per head, and those of the experimental group (n = 21) – 150 kg of whole milk and 250 kg of whole milk substitute diluted with water, the concentrate portion of the diet consisted of complete feed.

In equalizing period (from birth to 25 days of age) the experimental heifers were in the same conditions of feeding and maintenance – according to the scheme of growing consumed 6 kg of colostrum at first, and then whole milk per day and had free access to feed and water. In the first two weeks the animals were kept in individual cages, and later, during the milk and after milk periods – in group cages

of 5-7 heifers each. During 3 months of the main experiment period heifers of the control group according to the daily schedule were watered whole milk three times a day, and those of the research group – whole milk substitute.

Data of milk productivity of cows was studied by the materials of control milking, and of milk quality – using the analyzer "Hranat". During the experiment the studied cows were in similar conditions of feeding, keeping and exploitation. The obtained results were processed biometrically with the help of MS Excel.

It was established that studied first-borns were characterized by sufficiently high level of milk production. During the first 305 days of lactation milk yield were 48.6 dt in the control group of cows and 56.7 dt in the research one.

In terms of almost the same composition of milk by fat, protein and dry matter first-borns of the experimental group, having yield which was higher by 808 kg (16.7%), significantly prevailed peers of the control group by the total yield of the main milk components per lactation.

During the second lactation it took place significant increase of milk yield for animals of both control and experimental groups, by 2184 kg (45.0%) and 1283 kg (22.6%) respectively, as a result, milk yield for 305 days of lactation was about 7000 kg with a small benefit of animals of the control group over the animals of the same age of the experimental group.

Along with the increase in yields it was observed deterioration in the milk composition of the animals of both groups. Along with that, the cows of the research group showed more significant reduction of the main components in milk: fat – by 0.37%, protein – by 0.08%, dry matter – by 0.6% when compared to the animals of the control group, in which these indicators changed by 0.3%, 0.09%, and 0.47% respectively.

Despite the deterioration in the composition of milk of animals of both groups, it significantly increased the yield of the main milk components for the second lactation when compared to the first one. Thus, according to the total yield of fat, protein and dry matter, this advantage of cows of the control group was more significant and was 64.7 kg (33.7%), 61.9 kg (40.3%) and 241.6 kg (39.1%)

respectively, while in the experimental group of animals, this advantage was 30.0 kg (13.7%), 41.7 kg (24.3%) and 144.2 kg (20.7%) respectively.

For the third lactation yield of experimental cows was almost the same, but in comparison to the second lactation of the cows of the control group it was smaller by1088 kg and of the research one – by 1002 kg. At the same time it took place deterioration in the composition of milk and reduction of the number of milk fat, protein and dry matter.

In general, the experimental animals in both groups were characterized by high genetic potential according to basic indicators of milk production which were not fully manifested in the third lactation, primarily due to insufficient and poor feeding of cows.

According to indexes of reproductive ability, the animals of the experimental group came slightly short to the animals of the control group. Thus, according to the duration of the period of service between the cows of the control and experimental groups, the difference in first lactation was 63.8 days ($p < 0.05$), in the second lactation this difference decreased and was 20.4 days, and in the third one reduced down to 12.8 days.

According to the duration of calving interval the difference between animals of the control and the experimental groups for the first lactation was 68 days ($p < 0.05$), for the second lactation – 24.7days, and for the third one – 12.8 days. Economically, the extension of calving interval is undesirable and they should be taken steps to reduce it to a reasonable period (365 days).

In such duration of service period and calving interval, the reproductive capacity coefficient of animals of the control and experimental groups for the first lactation was 0.86 and 0.75, for the second one – 0.99 and 0.94, and for the third one – 0.91 and 0.88 respectively, indicating rather low yield of calves for the first lactation and almost optimal for the second.

References

1. Інтенсивні методи використання молочного стада / В. І. Костенко, А. Я. Маньковський, Г. В. Танцуров, А. І. Сривов. – К.: Урожай, 1990. – 192 с.

2. Кудлай І. Ефективність використання різних замінників молока в технології вирощування теличок / І. Кудлай // Тваринництво України. – 2010. – №1. – С. 13-15.

3. Нормы и рационы кормления сельскохозяйственных животных: Справочное пособие / [А. П. Калашников, Н. И. Клейменов, В. Н. Бакланов и др.]; Под ре. А. П. Калашникова. – М.: Агропромиздат, 1985. – 352 с.

4. Технологія виробництва молока і яловичини / [В. І. Костенко, Й. З. Сірацький, Ю. Д. Рубан та ін.]; за заг. ред. В.І. Костенка. – К.:Аграрна освіта, 2010. – 530 с.